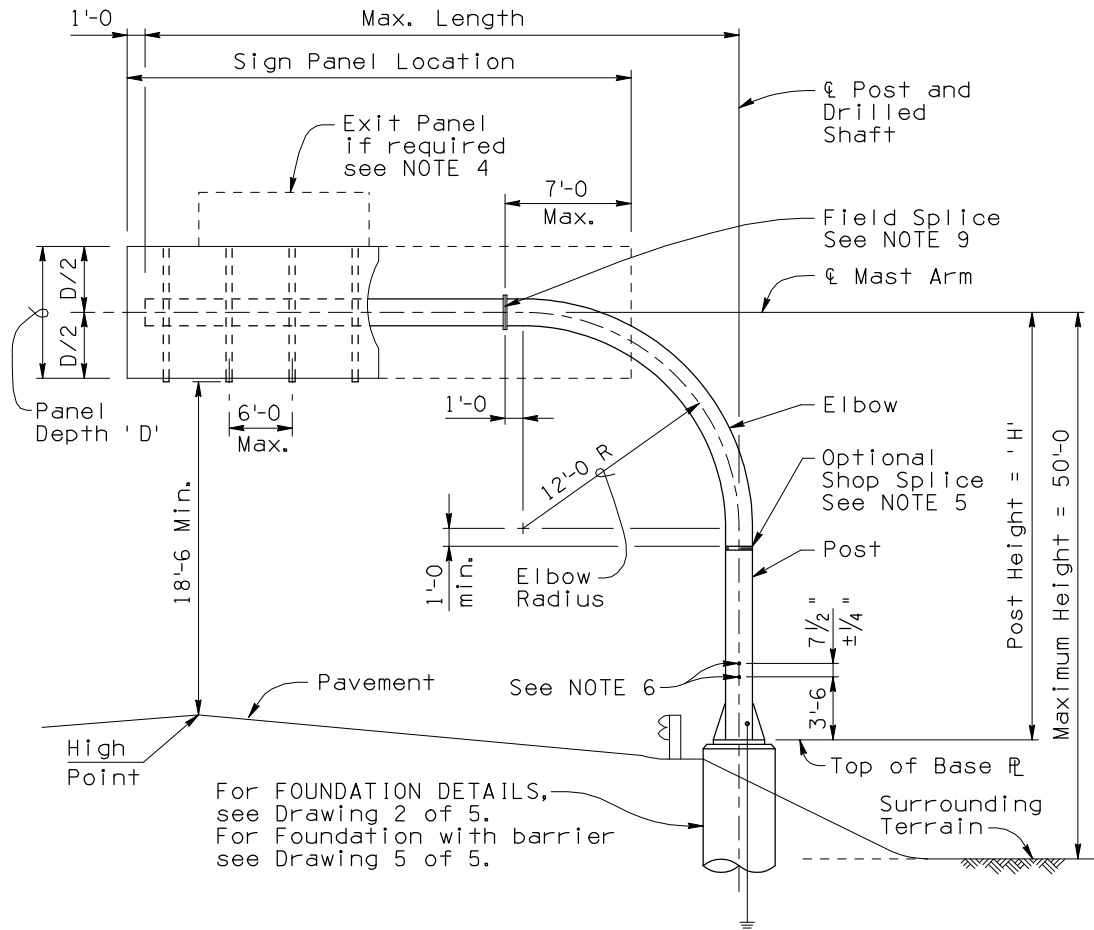


Note to Designer:  
The information presented in this Standard Detail has been prepared in accordance with recognized engineering principles and is for general use. It should not be used for specific application without competent professional examination and verification of its suitability and applicability by a licensed professional engineer. Contents within the inner border line shall not be altered.

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE	
			DATE	DATE
1	Original Issue	UHP	6-01	
2	General Update	UHP	3-11	
3				
4				

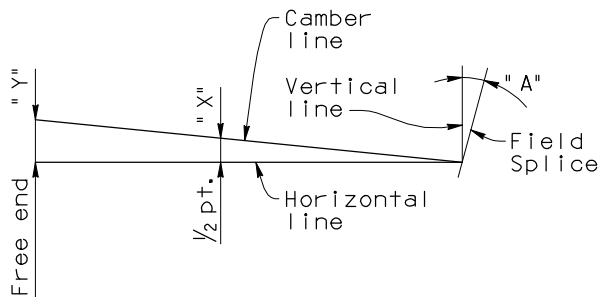


TUBULAR CANTILEVER SIGN STRUCTURE ELEVATION

TUBULAR CANTILEVER DATA FOR SIGN PANEL SUPPORT												
TUBULAR CANTILEVER				PIPE WALL THICKNESS ( INCHES)			SIGN PANEL		PAYMENT ITEMS			
Frame Type	Max. Length	Max. Post Height 'H'	Nominal Pipe Dia.	Post	Elbow	Mast Arm	Max. Area Sq. Ft.	Max. Depth 'D'	CANTILEVER SIGN STRUCTURE		FOUNDATION	
									Item Number	Measurement	Item Number	Measurement
1C	33'-0	28'-0	16"	1.219	1.219	0.500	92	12'	6060131	Ea	6060254	Ea
2C	33'-0	28'-0	18"	1.156	1.156	0.625	151	12'	6060132	Ea	6060255	Ea
3C	33'-0	28'-0	20"	1.280	1.280	0.625	245	12'	6060133	Ea	6060256	Ea
4C	43'-0	28'-0	22"	1.125	1.125	0.875	186	10'	6060134	Ea	6060257	Ea

OVERHEAD SIGN NOTES:

- Wind Loading: 90 MPH Velocity.
- Maximum Height: 50'-0 from average surrounding terrain to the center of the sign panel (Regardless of post height). The Tubular Cantilever has been designed for site conditions which are level and neither elevated above the average surrounding terrain by more than the 50'-0 height shown nor supported on a bridge.
- The maximum sign panel overlap onto elbow shall not exceed 7'-0 from field splice.
- The sum of the sign panel area plus the exit panel area shall not exceed the maximum area shown in the table. All signs shall be placed within Sign Panel Location.
- The Optional Shop Splice may not be used when the splice location is less than 5'-0 above the top of base plate. Shop splice of pipe sections (other than shown) are not permitted without prior approval.



CAMBER DIAGRAM

TYPE	Post Height (Ft)	CAMBER		"A"
		"X"	"Y"	
1C	0-5	7/8"	1 5/8"	0°20'00"
	5.1-10	1"	2"	0°24'30"
	10.1-15	1 1/8"	2 1/4"	0°29'00"
2C	0-5	7/8"	1 1/2"	0°18'00"
	5.1-10	1"	1 3/4"	0°22'00"
	10.1-15	1 1/8"	2 1/8"	0°26'00"
3C	0-5	5/8"	1 1/8"	0°13'30"
	5.1-10	3/4"	1 3/8"	0°16'30"
	10.1-15	7/8"	1 5/8"	0°20'00"
4C	0-5	1 5/8"	3"	0°25'00"
	5.1-10	1 7/8"	3 1/2"	0°30'00"
	10.1-15	2 1/8"	4 1/8"	0°35'30"

- The camber shown is required to be built into mast arm. Members shall be erected so that camber is provided above the horizontal line thru the field splice.
- The calculated camber provides for deflections due to dead loads of tubular cantilever structure and dead loads due to sign panels and attachments. For post heights between 0'-0 and 15'-0 values of "A", "X", and "Y" shall be interpolated.
- The pipe flange of mast arm shall be perpendicular to its longitudinal axis. The pipe flange of elbow shall be tilted from the vertical line at the angle given in the table.

GENERAL NOTES:

Construction Specification - Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, latest Edition.

Design Specifications - AASHTO LRFD Bridge Design Specifications, 5th Edition 2010.

All tubular structural cantilever pipe shall be welded or seamless steel pipe and shall conform to ASTM Specification (Fy = 35,000 psi):  
A-53 Grade B, Type E or S  
A252 Grade 2, Type E or S  
A106 Grade B, Type S only  
API 5L Grade B, Type E or S  
API 5LX Grade X42, Type E or S

All other Structural Steel shall conform to ASTM Specification A36 unless noted otherwise.

All bolts shall conform to ASTM Specification A325. All bolts, nuts and washers shall be galvanized in accordance with the requirements of ASTM A153. All other steel shall be galvanized after fabrication in accordance with ASTM A123.

Welding of structural tubing shall conform to the requirements of the American Welding Society, Structural Welding Code, D1.1, latest Edition. All welding shall be continuous unless noted otherwise. All butt welds shall be full penetration using prequalified welding procedures and shall be tested by ultrasonic testing. All butt welds shall be ground flush, full width. Grinding striations shall be parallel to the length of member.

All other welding shall conform to the requirements of the American Welding Society, ANSI/AASHTO/AWS D1.5 Bridge Welding Code, latest Edition.

The Column to base plate weld (WELD DETAIL A) and pipe flange to elbow and mast arm welds (WELD DETAIL C) shall be tested by ultrasonic testing.

All Concrete shall be Class "S" (f'c = 3500 psi).

Reinforcing steel shall conform to ASTM Specification A615. All reinforcing shall be furnished as Grade 60.

All bends and hooks shall meet the requirements of AASHTO LRFD Article 5.10. All bend dimensions for reinforcing steel shall be out-to-out of bars. All placement dimensions for reinforcing steel shall be to center of bars unless noted otherwise.

Dimensions shall not be scaled from drawings.

Drilled shaft location and top of drilled shaft elevation shall be field verified by the Contractor prior to fabrication of post.

DESIGN APPROVED <i>Shafiq H. Hasan</i>		ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION <b>BRIDGE GROUP STRUCTURE DETAIL</b>	
APPROVED FOR DISTRIBUTION <i>Tam A. Nehme</i>		TUBULAR SIGN STRUCTURES TUBULAR CANTILEVER GENERAL PLAN	
ROUTE	PROJECT NO.	FA NO.	DRAWING NO. SD 9.10 (1 of 5)
LOCATION			SHEET NO. OF